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THE AGRICULTURAL AND TECHNICAL COLLEGE OF NORTH CAROLINA


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**GRADUATE
SCHOOL
BULLETIN
1965-1967**







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**THE AGRICULTURAL
AND TECHNICAL COLLEGE
OF NORTH CAROLINA**

Greensboro



VOL. 57

FEBRUARY, 1966

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AND TECHNICAL COLLEGE
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**Graduate School Office
Room 200—Dudley**



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THE AGRICULTURAL AND TECHNICAL
COLLEGE OF NORTH CAROLINA

GRADUATE SCHOOL

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BURLEIGH C. WEBB, *Dean, School of Agriculture*

* Effective June 1, 1966.

Graduate School

GENERAL INFORMATION

HISTORY

Graduate education at the Agricultural and Technical College of North Carolina was authorized by the North Carolina State Legislature in 1939. The authorization provided for graduate training in agriculture, technology, applied science and applied areas of study. An extension of the graduate program, approved by the General Assembly of North Carolina in 1957, provided for enlargement of the curriculum to include teacher education, as well as such other programs of a professional or occupational nature as might be approved by the North Carolina State Board of Higher Education.

PURPOSE

The Graduate School coordinates advanced course offerings of all departments within three academic schools of the College, namely, the School of Agriculture, the School of Education and General Studies, and the School of Engineering.

The Graduate School offers the academically mature student a type of instruction consistent with the demands of contemporary society. Graduate study is particularly recommended for those individuals whose interests and aptitudes carry them beyond routine application. Students are expected to develop their powers of independent thought and to become familiar with the discipline of research.

The Graduate School seeks to 1) provide the requisite environment for its students by frequent and critical re-evaluation of the curricula and 2) observe strict adherence to standards set forth by the faculties of the College and to the standards of the appropriate accrediting agencies.

ORGANIZATION

Faculty of the Graduate School. The faculty of the Graduate School is composed of individuals who have been recommended by deans of their schools and have been approved by the Graduate School Council and the President of the College. Full-time members of the College faculty who are assigned to teach graduate courses are also associated with undergraduate instruction.

Graduate School Council. Members of the Council are appointed by the President of the College. The Dean of the Graduate School serves as Council Chairman. Two specific functions of the Council are, 1) to determine requirements for graduate degrees, and 2) to recommend to the President of the College policies for the Graduate School. The Council serves as a representative body for the Graduate School faculty.

Advisory Committees of the Graduate School. Several standing committees of the Graduate School are organized to advise the Council on matters pertaining to present policies, to evaluate existing and proposed

programs of study, and to process student petitions relating to academic matters. These committees are:

Committee on Curriculums and New Programs
Committee on Publications
Committee on Student Affairs and Petitions
Committee on Admissions and Retention
Committee on Library Holdings

DEGREES GRANTED

The Graduate School of the Agricultural and Technical College offers the Master of Science degree in the following fields: Agricultural Education, Chemistry, Education, and Industrial Arts Education.

HOUSING

The College maintains five residence halls for women and two for men. A request for dormitory housing accommodation should be directed to the Dean of Students at least one quarter prior to the expected date of registration.

FOOD SERVICES

The College provides food service for students at minimum cost. Two well-equipped cafeterias and a snack bar are operated at convenient locations on the campus. Only students who live in the residence halls are required to eat in the cafeterias.

FINANCIAL ASSISTANCE

The College provides some programs to assist students experiencing financial difficulties, but rarely can the institution defray the total expenses of an individual. The National Defense Student Loan Fund is available to a number of persons who need assistance in continuing their work at the college. Further information regarding this program, as well as other inquiries concerning financial aid, should be directed to: The Student Aid Officer, A. and T. College, Greensboro, N. C.

FEES

The fees charged full-time graduate students carrying 15 semester hours of work are the same as those charged to full-time undergraduate students. For one academic year, a state resident should expect to pay approximately \$339.00, which will cover tuition and course fees. This sum *does not* include room and board charges. Tuition and course fees for an out-of-state student carrying a full schedule will total about \$591.00 for the academic year.

As student fees are subject to change without prior notice, it is suggested that the Cashier's Office be consulted for complete information concerning charges for full- and part-time students.

SPECIAL FEES

Diploma fee	\$15.00
Transcript (after first one)	1.00
Late registration	5.00
Master's thesis binding fee	20.00
Rental of academic regalia	8.75

GENERAL REQUIREMENTS FOR THE MASTER OF SCIENCE IN EDUCATION DEGREE

A minimum of thirty (30) semester credits is required for the Master of Science degree at the Agricultural and Technical College of North Carolina. The thirty (30) semester credits represent the minimum quantity of work acceptable for the Master of Science degree. Inadequate preparation for graduate study however, may make additional hours of credit necessary for a candidate to complete the requirements for a degree.

ADMISSION TO CANDIDACY

The applicant chooses the major field of study. An advisory committee of the Graduate School assists the student in designing his program until he has been admitted to candidacy. Normally the student must complete a program of prescribed course work consisting of 12 to 15 hours before he may apply for admission to candidacy. When the prescribed work has been completed, the student must apply for the Qualifying Examination.

All students will be required to present evidence of satisfactory performance on a qualifying examination before admission to candidacy for the degree. The qualifying examination must sample the student's general knowledge of a given discipline and the competence of the student to use effectively the English language in composition.

Notification of admission to or denial of candidacy will be sent to the student from the Graduate School Office, after evaluation of: (1) the applicant's academic record from the Admissions Office, (2) results of the Graduate Record Examination, and (3) recommendations from all committees which administered such other tests as are required for admission to candidacy.

Performance on the qualifying examination may result in admission to candidacy without deficiencies, admission to candidacy with addition of course hours in a major or minor field or both, or failure to be admitted to candidacy.

In consultation with the adviser, the student develops and commits himself to a program of study which meets the requirements for the degree. The course requirements may include graduate credits earned prior to admission to candidacy and must be submitted to the Dean of the Graduate School for approval. A proposed program may be revised upon written approval of the adviser and the Graduate School Dean.

OPTIONS FOR DEGREE PROGRAM

The student, in consultation with his adviser, selects the degree program to be followed. The adviser must notify the chairman of the department of the program plan which the candidate prefers to follow.

THE THESIS OPTION

For those who select the thesis option, the program of study shall consist of thirty semester hours including the thesis. After the chairman of the department has been duly notified of the candidates

intention to follow the thesis option, the candidate shall prepare and present the thesis proposal to the adviser. Upon the request of the adviser, the Dean of the Graduate School shall appoint a Thesis Proposal Committee and shall fix a time of meeting. Following acceptance of the proposal, the adviser must submit to the Dean of the Graduate School an approved copy of the proposal in its final form. Individuals who have been granted the privilege of following the thesis option are expected to demonstrate research competencies and to prepare a scholarly account of resulting data.

THE NON-THESIS OPTION

The Non-Thesis plan is offered to the candidate who may benefit more from a broader range of knowledge than from the preparation of a thesis. The program of study must consist of a minimum of 36 credit hours of prescribed courses.

Individuals who are following this plan must demonstrate their ability to conduct and to report the results of original research by preparing a paper as a part of the course *Special Problems or Research or Seminar* in the appropriate area.

CORE REQUIREMENTS FOR DEGREE PROGRAMS

All candidates for the Master of Science degrees, except Master of Science in Chemistry, must complete the core requirements which follow:

1. Education 2183 or 2187 or Ind. Arts 3596 or Ag. Educ. 1283 (Curriculum).
2. Education 2281 (Statistics).
3. Psychology 2390 (Educational Psychology).
4. In non-thesis plan, Education 2282 or credit for Seminar in Chemistry or Biology. In the thesis plan, Education 2292 or Ag. Educ. 1299 or Chemistry 1799 or Ind. Arts 3599.

PROGRAMS FOR THE MASTER'S DEGREE

MASTER OF SCIENCE DEGREE IN AGRICULTURAL EDUCATION

The Department of Agricultural Education offers work leading to the Master of Science degree in Agricultural Education. Admission to the program requires that an applicant must have completed an undergraduate major in agriculture from an accredited four-year college and show evidence that he meets requirements for a collegiate teacher's certificate in Agricultural Education.

General Requirements for the Degree

Candidates for the Master's degree following the non-thesis plan must complete a minimum of 12 semester hours from the following: Education 2281, Psychology 2390, Education 2183 or Agricultural Education 1283 and Education 2282 or Agricultural Education 1299, 18 semester hours in selected courses in technical agriculture and 6 semester hours of electives.

A student who writes a thesis must complete a minimum of 9 semester hours from the following: Education 2281, Psychology 2390, Education 2183 or Agricultural Education 1283. In addition, the student must complete 18 semester hours in technical agriculture and the Thesis Research.

MASTER OF SCIENCE DEGREE IN CHEMISTRY

The Department of Chemistry offers the degree, Master of Science in Chemistry. In addition to this program, the department provides instruction for those graduate students who wish to pursue a curriculum that could lead toward a degree in Education with specialization in Chemistry, or General Science. Individuals who desire to renew teaching certificates in the field may also enroll in certain courses in the department for this purpose.

Applicants to the program, Master of Science in Chemistry, may be granted unconditional admission if the following minimum requirements have been met: 1) applicant must hold a baccalaureate degree in chemistry or its equivalent from an institution of recognized standing, 2) the undergraduate program must have included one year of physical chemistry in which one year of differential and integral calculus were taken as prerequisites, and 3) have a cumulative grade point average of at least 2.6 on the 4.0 point system.

General Requirements for the Degree

A candidate for the Master of Science degree in Chemistry must 1) be unconditionally admitted to the degree program, 2) take the Graduate Record Examination (the aptitude test and the advanced test in Chemistry). Scores must be submitted to the Graduate School Office before admission to the final examination can be granted, 3) take the qualifying examination after successfully completing at least 8 hours of graduate level courses in chemistry, 4) pass a foreign language examination in German, 5) complete a minimum of 30 semester hours of prescribed studies in which at least 20 hours must be in chemistry, 6) pass a comprehensive (final) examination in the subject field, and 7) present an acceptable thesis to the Graduate School.

The program of study must include a minimum of three semester hours of prescribed work from each of the following branches: *analytical chemistry, inorganic chemistry, organic chemistry, and Physical chemistry*. Other graduate courses offered by the department may also be used in meeting the requirements for this degree.

Candidates for the degree, Master of Science in Chemistry, who desire to teach in the public schools of North Carolina on a graduate certificate should refer to the Teacher Education requirements listed under the Department of Education and Psychology.

FINAL EXAMINATION

At least 30 days before a candidate expects to complete all work for the graduate degree, he should file in the Graduate School Office, an application for a final examination. A candidate must pass a comprehensive examination covering the field of concentration as well as other graduate courses taken.

MASTER OF SCIENCE DEGREE IN EDUCATION

The Department of Education and Psychology offers the degree, Master of Science in Education. This program is designed for the individual who wishes to seek a graduate certificate to teach, or serve in an administrative capacity in the public schools of North Carolina.

Areas of concentration included in this degree program are: 1) Elementary Education, 2) Administration and Supervision, 3) Guidance, and 4) Secondary Education.

Unconditional admission to either of the programs indicated above will be granted if the applicant's undergraduate record meets scholastic standards, and he holds or is preparing to hold a North Carolina Class "A" certificate in the field of his specialized area of teacher education.

General Requirements for the Degree

1. *Elementary Education Curriculum*: This program requires that the candidate complete the core curriculum in education and earn at least 18 hours in academic courses distributed in the areas of: language arts, social studies, sciences, mathematics, arts, and health and physical education, but including not more than three disciplines. In addition, Education 2282 and electives to total 6 hours are needed for the non-thesis degree program. The thesis option requires credit for Education 2292.
2. *Educational Administration Curriculum*: Students pursuing this area of concentration are not eligible for a graduate teaching certificate. This program is designed for those who are interested in qualifying for a principal's or supervisor's certificate. The basic curriculum for this program requires that the candidate complete: (1) 9 hours of core courses in education, (2) 9 hours of administration and supervision courses, and (3) 6 hours in a related discipline, (4) 3 hours of internship program and 9 hours in electives. The thesis option requires the completion of (1), (2), and (3), described above plus credits earned in Thesis Research.
3. *Counselor-Education Curriculum*: This program in Education is designed for the individual who is seeking to qualify for a School Counselor's Certificate. The basic curriculum for the Counselor-Education program calls for a minimum of thirty-six semester hours of graduate credit distributed as follows: Psychology, 6 semester hours; School Counseling, 12 semester hours; Education, 6 semester hours; Laboratory and Supervised Practicum, 3 semester hours; Societal Forces and Cultural Changes, 6 semester hours; and Research, 3 semester hours.
4. *Secondary Education Curriculum*: Candidates following the secondary education program must select one of the following academic areas of concentration: (1) Biology, (2) Chemistry, (3) English, (4) French, (5) Mathematics, (6) History, (7) Science, or (8) Social Science. The program chosen requires that the candidate complete the core curriculum in Education and earn at least 18 semester hours in courses prescribed for the area of concentration. In addition, Education 2282 (Seminar) and electives to total 6 hours are needed for the non-thesis program. The thesis option requires credit for Thesis Research, but not 6 hours of electives.

MASTER OF SCIENCE DEGREE IN INDUSTRIAL EDUCATION

The Department of Industrial Education offers the degree, Master of Science in Industrial Education with options in Industrial Arts and Trade and Industrial Education. Admission to the program requires that the applicant hold a baccalaureate degree from an accredited four-year college in Industrial Arts or Industrial Education or show evidence that he meets requirements for a collegiate teacher's certificate in Industrial Education in the state for which he is prepared to teach.

General Requirements for the Degree

The student who writes a thesis must complete credit in the following courses: Education 2281, Psychology 2390, and one of Education 2183 or Education 2187 or Industrial Education 3596. In addition, the candidate must complete 18 semester hours in Industrial Arts or Industrial Education and Thesis Research.

The student not writing a thesis must complete credit in the following courses: Education 2281, Education 2183 or 2187, or Industrial Education 3596, Psychology 2390, and Education 2282. In addition, the candidate must complete 18 semester hours in Industrial Education, or Industrial Arts and 6 semester hours in electives.

APPLICATION FOR GRADUATION

A candidate for graduation must file an application for graduation in the office of the Graduate School at least 30 days prior to the close of the session in which the student expects to complete the requirements for the degree. Failure to meet the deadline may result in delay of graduation of the candidate.

MASTER'S THESIS AND FORMAT

The following regulations are effective regarding a Master's Thesis and a thesis format:

1. A student writing a thesis must register for the course, Thesis, during the semester in which he expects to take the Final Examination.
2. Four typewritten copies of the completed thesis must be submitted to the Dean of the Graduate School, together with two copies of an abstract of the thesis. The abstract should contain no less than 400 nor more than 500 words. Consult the Graduate School's calendar for deadline dates regarding submission of these manuscripts.
3. Additional information concerning the format, and other details related to thesis writing is available in the Graduate School Office.

LANGUAGE REQUIREMENT

A reading knowledge of German, is required of all candidates for the Master of Science degree in Chemistry.

ACADEMIC POLICIES

Transfer of Credit. A maximum of six semester hours of transfer graduate credit may be accepted toward the Master's degree if: (1) the credit has been earned within six years of the date on which the Master's degree is conferred, (2) the work is acceptable as credit toward a comparable degree at the institution from which transfer is sought, and (3) the courses to be transferred are approved by the Dean of the Graduate School and Director of Admissions, A. and T. College.

To request a transfer of credit, the student must complete an application in the Graduate School Office. It will be the applicant's responsibility to write the appropriate institution(s) to request that a transcript of courses be sent to A. and T. College and to secure a statement from the Graduate School of said institution that the work is acceptable as credit toward a comparable degree.

Course Levels. All students will be expected to study their programs to make certain that courses taken for credit towards a degree will meet the minimum requirements of course levels. Four digit numbers are used to designate all course offerings, the last two digits of the number indicating the classification level of the course. Only courses with numbers ending from 70 to 99 may be used in a graduate degree program. At least 50 per cent of courses chosen for the field of specialization or area of concentration must bear 80 to 99 numbers; this total shall not include any courses the student may have taken to reduce deficiencies or to effect a change in certificate areas.

Grading System. Grades are recorded by letters as follows: for courses, A, B, C, D, I, F, (failure), for thesis research, P (a temporary grade to indicate that the thesis is in progress). The I indicates that work is incomplete and it must be removed within the following semester.

1. In order to earn a degree, a student must have a cumulative average of "B." This is intended to mean a grade point average of 3.0 on the 4.0 point system.
2. A student automatically goes on probation when his cumulative average falls below "B," however subsequently he may be notified by the Dean of the Graduate School!
3. A student must repeat any required course in which he has made a grade of "D" or "F." He may not repeat the course more than once.

Registration for No Credit. A student may register for no credit (NC) in any course if he has the approval of his adviser and the Chairman of the Department. In determining the total study load allowed, "NC" courses are counted at the equivalent credit value. The tuition charge for "NC" courses is the same as for credit courses, and the courses are listed on the student's permanent record. As no grade is reported by the instructor, no attendance records are maintained. "NC" registrants *cannot change* to become credit registrants after the deadline for credit registration has passed.

Auditing. Auditing privileges in which additional fees are waived are extended only to full-time students. To audit a course, the student must obtain permission from the Dean of the Graduate School and must submit the necessary forms during registration period. A change from "credit" registration to "Audit" will not be permitted following the close of a deadline date for change in program.

Schedule of Deadlines. The Graduate School provides schedules of specific dates for completing various requirements for a degree program. These notices are not sent to individuals automatically, but may be found in the calendar of the Graduate School, available upon request.

Concurrent Registration in other Institutions. A student registered in a degree program in this Graduate School may not enroll concurrently in another graduate school except upon permission *secured in advance*, from the Dean of the Graduate School.

Requests for Grade Reports, Transcripts or Record Evaluation. The Admissions Office is the official record-keeping office at the College. Requests for official statements regarding courses completed, grade reports or transcripts should be filed in that office.

Class Loads.

1. **Full-Time Students:** Class loads for the full-time student may range from 12 to 15 semester hours during a regular session of the academic year.
2. **In-Service Teachers:** The maximum load for a fully employed in-service teacher must not exceed six semester hours during any academic year.
3. **College Staff:** The maximum load for any fully employed member of the College faculty or staff will be six semester hours for the academic year.

RESIDENCE REQUIREMENTS

A minimum of three fourths ($\frac{3}{4}$) of the hours required for the degree must be earned in residence study at the College for students following the thesis or the non-thesis program.

TIME LIMITATION

The graduate program must be completed within six successive calendar years. Programs remaining incomplete after this time interval are subject to cancellation, revision, or special examination for out-dated work. Credit transferred from another institution becomes void if it falls within a cancelled period of the student's program.

When the program of study is interrupted because the student has been drafted into the armed services, the time limit shall be extended for the length of time the student shall have been on active duty, if the candidate resumes graduate work no later than one year following his release from military service.

GRADUATE RECORD EXAMINATION

The Graduate Record Examination is required of all students who desire to become candidates for degrees. Information concerning the time, place and cost of the examination may be obtained from the Office of the Dean of the Graduate School.

Note: Students pursuing degrees must fulfill the contract in force at the time of their initial matriculation. If more than six years have ensued, the program and contract may be re-evaluated and re-established. The contracts herein referred to relate to students whose initial matriculation began in June, 1966 or after that date.

DEPARTMENTS OF INSTRUCTION

Agricultural Economics and Rural Sociology

Howard F. Robinson, Chairman

Office: 224 Carver Hall

COURSES IN AGRICULTURAL ECONOMICS

Advanced Undergraduate and Graduate

1175. Southern Resources in a Changing Economy—A Seminar.

(Formerly Ag. Econ. 551.)

Credit 2(2-0)

Trends and the formulation of economic and social problems in the South, and particularly in North Carolina; labor and capital mobility, agricultural as compared with the industrial, the problem of underemployment, and important phases of current economic development. Prerequisites: Economics 2840, Sociology 2831 or Ag. Econ. 1121.

1176. Agri-Business Policy.

Credit 3(3-0)

(Formerly Ag. Econ. 502-448.)

The place of Agri-business in the National and International economy; the impact of public policy on the industry. An analysis of policy as it relates to, price support programs, finance, trade and resource development. Prerequisite: Ag. Econ. 1121.

1177. Cost Accounts of Agri-Business Firms.

Credit 3(2-2)

(Formerly Ag. Econ. 503.)

A study of records needed to determine the relative profitability of various Agri-business enterprises, and the interpretation and use of these accounts in the management of the Agri-business firms.

1178. Commodity Marketing Problems.

Credit 3(3-0)

(Formerly Ag. Econ. 504.)

Economic problems arising out of the demand, supply and distribution of specific agricultural commodities; the price making mechanism, marketing methods, grades, values, price, cost, and governmental policy. Not more than two commodities will be studied in any one quarter. Selection of commodities and emphasis on problem areas will be made on the basis of current need; commodities studied will be cotton, tobacco, fruits and vegetables, and grains. Prerequisite: Consent of the Department Chairman.

1179. Seminar in Marketing Farm Products.

Credit 2(2-0)

(Formerly Ag. Econ. 506.)

Discussion, reports, consultation and research efforts which throw light on marketing problems of low income farmers in North Carolina, including National and International importance of locally grown products such as tobacco and cotton. Prerequisite: Consent of the Department Chairman.

1180. Special Problems in Agricultural Economics.

Credit 3(3-0)

(Formerly Ag. Econ. 508.)

Designed for students who desire to work out special problems in the field of agricultural economics; problem definition and formulation; developing thesis proposals. Prerequisite: Consent of the Department Chairman.

1181. **Agri-Business Management.** Credit 3(2-2)
(Formerly Ag. Econ. 509.)
Methods of research, plans, organization, and the application of management principles. Part of the student's time will be spent in consultation with Agri-business firms. Prerequisite: Consent of the Department Chairman.
1182. **Seminar in Agricultural Economics.** Credit 2(2-0)
(Formerly Ag. Econ. 510.)
Discussion reports and an appraisal of current literature on agricultural problems. Prerequisite: Consent of the Department Chairman.
1183. **Agricultural Economics Research.** Credit 3(3-0)
(Formerly Ag. Econ. 511.)
Review of different types of research methodology used in the field of Agricultural Economics. Prerequisite: Consent of Department Chairman.
1184. **Statistical Methods in Agricultural Economics I.** Credit 3(2-2)
(Formerly Ag. Econ. 532.)
Statistical methods with special applications to agricultural problems. The statistical table, ratios, percentages, bar charts, line charts and frequency distribution are used as analytical tools. Prerequisites: Ag. Econ. 1121, Econ. 2840 or Sociology 2831.
1185. **Statistical Methods in Agricultural Economics II.** Credit 3(2-2)
(Formerly Ag. Econ. 533.)
Statistical methods with special applications to agricultural problems. The time series analysis, sampling theory, analysis of variance, and simple correlation are used as analytical tools. This course is a continuation of Ag. Econ. 1185.
1186. **Appraisal and Finance of Agri-Business Firms.** Credit 3(3-0)
(Formerly Ag. Econ. 446-542.)
Principles of land evaluation, appraisal and taxation. The role of credit in a money economy, classification of credit, principles underlying the economic use of credit. The role of the government in the field of credit.

COURSES IN RURAL SOCIOLOGY

Advanced Undergraduate and Graduate

1187. **Rural Social Problems.** Credit 3(3-0)
(Formerly Rur. Soc. 501.)
Population, education, religion, health, land tenure, parity income, farm labor and mechanization, and housing.
1188. **Rural Leadership.** Credit 3(3-0)
(Formerly Rur. Soc. 502.)
Opportunities and needs for rural leadership; educational and psychological requirements for various types of rural leaders.
1189. **The Rural Family.** Credit 3(3-0)
(Formerly Rur. Soc. 503.)
The institutional nature of the rural family, etc., role in the community including its relations to educational, religious, welfare and other community organizations.
1190. **Rural Standards of Living.** Credit 3(3-0)
(Formerly Rur. Soc. 505.)
Consumption behavior in the main community groups of our society.

1191. Special Problem in Rural Sociology.
(Formerly Rur. Soc. 506.)

Credit 3(3-0)

Work on a problem in rural sociology under the guidance of a member of the faculty.

DEPARTMENT OF AGRICULTURAL EDUCATION

Clarence E. Dean, Chairman

Office: 268 Carver Hall

The Department of Agricultural Education offers professional courses to prepare persons for teaching vocational agriculture and related fields. The program is designed to meet the certification requirements of vocational agriculture teachers in North Carolina. The Department offers courses leading to the Master of Science Degree in the field of Agricultural Education.

COURSES IN AGRICULTURAL EDUCATION

Advanced Undergraduate and Graduate

1271. Adult Education in Vocational Agriculture. Credit 3(3-0)
(Formerly Ag-Ed 502 and 503.)

Principles and problems of setting up and directing adults with emphasis on conducting organizing instruction.

1272. The Principles of Agricultural Education. Credit 3(3-0)
(Formerly Ag-Ed 504.)

The principles and practices in agricultural education revealed by research and new trends.

1273. Problem Teaching in Vocational Agriculture. Credit 3(3-0)
(Formerly Ag-Ed 506.)

Setting up problems for teaching unit courses in vocational agriculture.

1274. Public Relations in Vocational Agriculture. Credit 3(3-0)
(Formerly Ag-Ed 507.)

The means and methods of promoting and publicizing the local program of vocational agriculture.

Consult the bulletin of the Graduate School for a description of graduate courses in Agricultural Education.

FOR GRADUATE STUDENTS ONLY

1282. Administration and Supervision. Credit 3(3-0)
(Formerly Ag. Ed. 601)

Administrative and supervisory problems of vocational agriculture, the practices and policies of local, state and federal agencies dealing with administration and supervision of vocational agriculture.

1283. Program Planning. (Formerly Ag. Ed. 602) Credit 3(3-0)

Consideration is given to the community as a unit for program planning in agricultural education. Special emphasis on collecting and interpreting basic data, formulating objectives, developing and evaluating community programs.

1284. **History of Agricultural Education.** Credit 3(3-0)
(Formerly Ag. Ed. 603)
A brief review of vocational education in Europe and America; special attention is given to vocational agriculture as it has developed in the United States.
1285. **Seminar in Agricultural Education.** Credit 1(1-0)
(Formerly Ag. Ed. 608)
Includes a review of current problems and practices in the field of agricultural education.
1286. **Public Relation in Agriculture.** Credit 3(3-0)
(Formerly Ag. Ed. 605)
The means and methods of promoting and publicizing local programs in agriculture.
1287. **Research in Agricultural Education.** Credit 3(3-0)
(Formerly Ag. Ed. 606)
A research problem is developed under the supervision of the staff.
1288. **Philosophy of Vocation Education.** Credit 3(3-0)
(Formerly Ag. Ed. 607)
This course deals with the underlying philosophy and basic principles of vocational education. Emphasis is placed upon the factors contributing to the nature, purpose, scope, organization, and administration of the vocational education in agriculture.
1289. **Recent Developments and Trends in Agricultural Education.**
(Formerly Ag. Ed. 610) Credit 3(3-0)
The course includes an intensive treatment of the various subject matter fields to keep teachers up to date technically as well as professionally. It is designed to cover the developments and trends in agricultural education.
1290. **Community Problems in Agriculture.** Credit 3(3-0)
(Formerly Ag. Ed. 612)
Finding the common problems of the community that relate to agricultural and developing solutions. (Formerly Agricultural Education 604.)
1291. **Methods and Techniques of Supervision in Agricultural Education.** (Formerly Ag. Ed. 609) Credit 3(3-0)
The course includes the common methods and techniques that should be used in setting up and supervising agricultural education on state and local levels. In addition, the course will include supervision of student teaching.
1299. **Thesis Research Agricultural Education.** Credit 4 Sem. hrs.

Animal Industry

W. L. Kennedy, Chairman

Office: Ward Hall

COURSES IN ANIMAL HUSBANDRY

Advanced Undergraduate and Graduate

1371. **Principles of Animal Nutrition.** Credit 3(3-0)
(Formerly A. H. 501)
Fundamentals of modern animal nutrition including classification of nu-

trients, their general metabolism and role in productive functions. (Prerequisite A. H. 1324)

1372. Animal Husbandry Seminar. Credit 1(1-0)
(Formerly A. H. 502 and A. H. 503)

A review and discussion of current literature pertaining to all phases of Animal Husbandry.

1373. Advanced Livestock Management. Credit 3(3-0)
(Formerly A. H. 513, A. H. 514, and A. H. 515)

Special work in problems in dealing with feeding, breeding, and management in the production of beef cattle, sheep and swine.

FOR GRADUATE STUDENTS ONLY

1381. Selection of Meat and Meat Products. Credit 3(3-0)
(Formerly A. H. 607)

Identification, grading, and cutting of meats.

1382. Advanced Livestock Marketing. Credit 3(3-0)
(Formerly A. H. 619)

A special study of advanced research in beef cattle with emphasis on breeding, nutrition selection, marketing and management.

1383. Advanced Livestock Production. Credit 3(3-0)
(Formerly A. H. 620)

Nutrition, breeding, management and marketing of lamb and mutton will be considered.

COURSES IN DAIRY HUSBANDRY

Advanced Undergraduate and Graduate

1374. Dairy Seminar. Credit 1(1-0)
(Formerly Dairy Husb. 501)

Assignment of papers on subjects relating to the dairy industry and methods of preparing and presenting such papers.

1375. Dairy Seminar. Credit 1(1-0)

Assignment of papers on subjects relating to the dairy industry and methods of preparing and presenting such papers.

1376. Special Problems. Credit 3(3-0)
(Formerly Dairy Husb. 504)

Assignment of work along special lines in which a student may be interested, given largely by the project method for individuals either in Dairy Manufacturing or Dairy Husbandry. (Prerequisite—three advanced courses in dairying.)

FOR GRADUATE STUDENTS ONLY

1384. Advanced Dairy Farm Management. Credit 3(3-0)
(Formerly D. H. 610)

Dairy farm operations; rations; feeding and care of the herd; selecting and grading the herd; herd sires; testing for production; barns and equipment; marketing; cost of production.

**COURSES IN POULTRY HUSBANDRY
FOR ADVANCED UNDERGRADUATES AND GRADUATES**

1378. Poultry Seminar. Credit 1(1-0)
(Formerly Poultry Husb. 501)

Special articles and reports on subjects relating to the poultry industry will be assigned each student with round table discussion.

1379. Poultry Anatomy and Physiology. Credit 3(2-2)
(Formerly Poultry Husb. 334)

A course which deals with the structure and function of tissues, organs, and systems of the domestic fowl. (Prerequisite Poultry Husb. 1356.)

1380. Special Problems in Poultry. Credit 3(1-4)
(Formerly Poultry Husb. 502 and 504)

Assignment of work along special lines in which a student may be interested, given largely by the project method for individuals in Poultry Husbandry. (Prerequisite—three advanced courses in poultry.)

GRADUATE COURSE IN POULTRY HUSBANDRY

1394. Poultry Research. (Formerly P. H. 601) Credit 3(0-6)

ART

LeRoy F. Holmes, Chairman
Office: 110 Frazier Hall

Advanced Undergraduate and Graduate

3280. Public School Art. Credit 3(3-0)
(Formerly Art 501)

Study of materials, methods, and procedures in teaching art in public schools. Special emphasis is placed on selection and organization of materials, seasonal projects, lesson plan.

3281. Drawing and Painting. Credit 2(0-4)
(Formerly Art 502)

The techniques of drawing and painting as presented with a broad approach to the problem of space. New concepts in the use of line, texture, color, and compositional forms are brought into study.

3282. Seminar in Art History. Credit 3(3-0)
(Formerly Art 503)

Investigation in depth of the background influences which condition stylistic changes in art forms by analyzing and interpreting works of representative personalities.

3283. Studio Techniques. Credit 3(0-6)
(Formerly Art 504)

Demonstrations that illustrate and emphasize the technical potentials of varied media. These techniques are analyzed and discussed as a point of departure for individual expression.

3284. Ceramic Workshop. Credit 3(0-3)
(Formerly Art 505)

Advanced studio problems and projects in ceramics with emphasis on independent creative work. The student is given opportunity for original

research and is encouraged to work toward the development of a personal style in the perfection of technique.

- 3285. Printmaking.** Credit 3(0-6)
(Formerly Art 506)

Investigation of traditional and experimental methods in printmaking. Advanced studio problems in woodcut etching, lithography, and serigraphy.

- 3286. Sculpture.** Credit 3(0-6)
(Formerly Art 507)

Further study of sculpture with an expansion of techniques. Individual problems for advanced students.

- 3287. Project Seminar.** Credit 2(0-4)
(Formerly Art 508)

Advanced specialized studies in creative painting, design, and sculpture. By means of discussion and suggestions, this seminar intends to solve various problems which might arise in each work. Prerequisite: Consent of the instructor.

- 3288. Arts and Crafts.** Credit 3(0-6)

Creative experimentation with a variety of materials, tools, and processes: projects in wood, metal, jewelry making, wood and metal construction, fabric design, leather craft, puppet making, and paper sculpture.

BIOLOGY

Artis P. Graves, Chairman

Office: 306 Noble Hall

COURSES FOR ADVANCED UNDERGRADUATES AND GRADUATES

Bacteriology

- 1571. Principles and Practices of Immunology.** Credit 2(2-0)
(Formerly Bact. 501)

In this course the fundamental mechanism of immunological reactions and their theoretical foundations will be studied. Selected lectures will deal with antigenic and chemical composition of certain microorganisms and methods of laboratory practice, including some clinical applications. Prerequisite: Gen. Microbiol. 1524.

Botany

- 1572. Plant Biology.** Credit 2(1-2)
(Formerly Bot. 505)

A presentation of fundamental botanical concepts to broaden the background of high school biology teachers. Bacteria, fungi, and other microscopic plants will be considered as well as certain higher forms of plants. The course will consist of lectures, laboratory projects, and field trips.

- 1573. Special Problems in Botany.** Credit 2(1-2)
(Formerly Bot. 504)

Open to advanced students in botany for investigation of specific problems. Prerequisite: Botany 1507 or 1572.

General Science

- 1570. General Science for Elementary Teachers.** Credit 2(2-0)
(Formerly Gen. Sci. 506)

This course will consider some of the fundamental principles of the life and physical sciences in an integrated manner in the light of present society needs.

Zoology

- 1574. Special Problems in Zoology.** Credit 3(1-2)
(Formerly Zool. 501)

Open to students qualified to do research in Zoology.

- 1575. Mammalian Biology.** Credit 3(3-0)
(Formerly Zool. 502)

Study of the evolutionary history, classification, adaptation and variation of representative mammals with special emphasis on the prenatal variations in prototherian, metatherian and eutherian types. Prerequisites: Zoology 1512 and Botany 1507.

- 1576. Biology of Sex.** Credit 3(3-0)
(Formerly Zool. 503)

Lectures on the origin and development of the germ cells and reproductive systems in selected animal forms. Prerequisite: Zoology 1512 or equivalent.

- 1577. Cytology.** Credit 3(3-0)
(Formerly Zool. 504)

Study of the cell with lectures and periodic student reports on modern advances in cellular biology. Prerequisite: Zoology 1551 or special consent of instructor.

- 1578. Histo-Chemical Technique.** Credit 3(1-2)
(Formerly Zool. 505)

Designed to develop skills in the preparation of cells, tissues and organs for microscopic observation and study. Prerequisite: Zoology 1512.

- 1579. Nature Study.** Credit 3(3-0)
(Formerly Zool. 506)

A study of diversified organisms, their habits, life histories, defenses, sex relationships, periodic activities and economic values designed to acquaint the student with fundamental knowledge that should lead to a fuller appreciation of nature.

- 1580. Experimental Embryology.** Credit 3(1-2)
(Formerly Zool. 507)

A comprehensive lecture-seminar course covering the more recent literature on experimental embryology and development physiology. Experimental studies treating with amphibian, chick and rodent development are designed as laboratory projects. Prerequisite: Zoology 1566 or equivalent.

- 1581. Animal Biology.** Credit 3(1-2)
(Formerly Zool. 508)

A lecture-laboratory course stressing fundamental concepts and principles of biology with the aim of strengthening the background of high school teachers. Emphasis is placed on the principles of animal origin, structure, function, development, and ecological relationships.

GRADUATE COURSES IN BOTANY

1582. Essentials of Plant Anatomy. Credit 4(2-4)
(Formerly Botany 611)

A study of the growth, development and organization of roots, stems leaves, and reproductive organs of higher plants. Lectures, discussions, field trips, and the laboratories are employed in the presentation of this course.

1583. Applied Plant Ecology. Credit 4(2-4)
(Formerly Botany 612)

Relations of plants to their environment with emphasis on climate and soil factors influencing their structure, behavior and distribution. Prerequisite: Botany 505, 611 or equivalent.

GRADUATE COURSES IN ZOOLOGY

1588. Projects in Biology. Credit 2(0-4)
(Formerly Zoology 601)

This course will consist of student participation in project developments, some of the experimental nature, that might be utilized by High School Biology Teachers in classroom activities.

1589. Seminar in Biology. Credit 1(1-0)
(Formerly Zool. 602)

Discussion of concepts and research in animal and plant biology.

1590. Applied Invertebrate Zoology. Credit 4(2-4)
(Formerly Zoology 611)

A study of the lower groups of animals, especially insects and their economic importance to the southeastern region. Lectures, field trips, and experimental work with local animals are stressed, as well as factors affecting growth, development and behavior. Prerequisite: Zoology 508 or equivalent.

1591. Fundamentals of Vertebrate Morphology. Credit 4(2-4)
(Formerly Zoology 612)

A study of the morphological evolution of the chordate animals from a comparative aspect, with lecture-demonstrations of dissected organ systems of the frog and cat. Reference to man is made to give this course a human approach. Prerequisite: Zoology 508 or equivalent.

1592. Basic Protozoology. Credit 4(2-4)
(Formerly Zoology 613)

The biology of free-living and parasitic protozoa with special emphasis on structure, behavior, life histories and classification. Special attention will be given to free-living forms from such local animals as fish, frogs and wild rodents. Prerequisite: Zoology 508.

1593. Introductory Experimental Zoology. Credit 4(2-4)
(Formerly Zoology 614)

Studies on fertilization, breeding habits, regeneration, growth and differentiation of certain invertebrates and vertebrates from the experimental approach. Emphasis will be placed on laboratory procedures on the frog and the chick.

1594. **Invertebrate Biology for Elementary and Secondary School Teachers.** Credit 3(3-0)
(Formerly Zoology 615)
A study of representative invertebrate groups with emphasis on origin, structure, function, classification, and ecological relationships.

CHEMISTRY

Gerald A. Edwards, Chairman
Office: Hines Hall Annex

FOR ADVANCED UNDERGRADUATES AND GRADUATES

1671. **Inorganic Chemistry.** Credit 2(2-0)
(Formerly Chem. 501)
A lecture course covering selected topics in Inorganic Chemistry; designed for science teachers having a limited background in Chemistry. Prerequisite: Chemistry 1612. Not accepted for credit toward a degree in Chemistry.
1672. **Organic Chemistry.** Credit 2(2-0)
(Formerly Chem. 502)
A lecture course covering selected topics in Organic Chemistry; designed for science teachers with a limited background in chemistry. Prerequisite: Chemistry 1612. Not accepted for credit toward a degree in Chemistry.
1673. **Advanced General Chemistry.** Credit 3(2-2)
(Formerly Chem. 503)
A lecture-laboratory course in which the laws and concepts of chemistry are presented with greater depth and clarity than in customary general chemistry courses.
1674. **Recent Advances in Chemistry.** Credit 2(2-0)
(Formerly Chem. 504)
A lecture-demonstration course in which recent occurrences in the major branches of chemistry and chemical education are presented. The course includes a series of student seminars resulting from library research on topics considered in the class.
1675. **Industrial Chemistry.** Credit 3(3-0)
(Formerly Chem. 505)
A review of the industrial production of chemical substances and the application of chemistry to various industrial processes.
1677. **Inorganic Synthesis.** Credit 2(2-0)
(Formerly Chem. 510)
Discussion of theoretical principles of synthesis and development of manipulative skills in the synthesis of inorganic substances. Prerequisites: One year of organic chemistry; one semester of quantitative analysis.
1678. **Advanced Inorganic Chemistry.** Credit 2(2-0)
(Formerly Chem. 511)
A sequence course in the theoretical approach to the systematization of inorganic chemistry. Prerequisites: Chemistry 1663, 1664 concurrent.

1679. Advanced Inorganic Chemistry II. Credit 2(2-0)
(Formerly Chem. 512)

Continuation of Advanced Inorganic Chemistry I. Prerequisite Chem. 1664.

1771. Qualitative Organic Chemistry. Credit 4(2-6)
(Formerly Chem. 524)

A course in the systematic identification of organic compounds. Prerequisite: One year of Organic Chemistry.

1772. Instrumental Methods of Analysis. Credit 4(2-6)
(Formerly Chem. 531)

A study of the theory and the operational features of some of the more important instruments that are currently being used as analytical tools such as U.V., visible-light, and infrared spectrophotometers, electroanalytical instruments, thermometric titrators, fluorimeters, etc. Prerequisite: Chemistry 1662 or equivalent.

1773. Radiochemistry. Credit 4(3-3)
(Formerly Chem. 541)

A study of the fundamental concepts, processes, and applications of nuclear chemistry, including natural and artificial radioactivity, sources and chemistry of the radioelements. Open to advanced majors and others with sufficient background in chemistry and physics. Prerequisite: Chemistry 1664 or Physics 3846.

1774. Radioisotope Techniques and Applications. Credit 2(1-3)
(Formerly Chem. 542)

The techniques of measuring and handling radioisotopes and their use in chemistry, biology, and other fields. Open to majors and non-majors. Prerequisite: Chemistry 1612 or 1614.

1775. Introduction to Quantum Mechanics. Credit 2(2-0)
(Formerly Chem. 543)

Non-relativistic wave mechanics and its application to simple systems by means of the operator formulation. Prerequisites: Math 3622, Physics 3822, and Chemistry 1664 prior or concurrent.

1777. General Biochemistry. Credit 4(3-3)
(Formerly Chem. 551)

A descriptive study of lipids, carbohydrates, proteins, including composition, reactions, and metabolic significance. Prerequisites: General, Organic, and Chemistry 1662.

COURSES FOR GRADUATE STUDENTS ONLY

1682. Seminar Credit 1(1-0)
(Formerly Chem. 601)

Presentation and discussion of library or laboratory research problems.

1082. Chemical Research I Credit 2(0-6)
(Formerly Chem. 602)

A course designed to permit qualified students to do original research in chemistry under the supervision of a senior staff member.

1083. Chemical Research II Credit 3(0-9)
(Formerly Chem. 602)

A continuation of Chem. 1082.

- 1084. Chemical Research III** Credit 4(0 12)
 (Formerly Chem. 602)
 A continuation of Chem. 1083
- 1683. Structural Inorganic Chemistry** Credit 2(2-0)
 (Formerly Chem. 611)
 A study of the stereochemistry of inorganic substances; the relationship of structure to properties; and a discussion of experimental methods. Prerequisites: Chem. 1679 and 1775.
- 1085. Special Problems in Inorganic Chemistry I** Credit 2(0-6)
 (Formerly Chem. 615)
 A laboratory course designed to introduce the student to the techniques of chemical research by solving minor problems in Inorganic Chemistry.
- 1086. Special Problems in Inorganic Chemistry II** Credit 3(0-9)
 (Formerly Chem. 615)
 A continuation of Chem. 1085.
- 1685. Selected Topics in Inorganic Chemistry** Credit 2(2-0)
 (Formerly Chem. 616)
 A lecture course on advanced topics in Inorganic Chemistry. Prerequisite: Chemistry 1679 or permission of the instructor.
- 1687. Elements of Organic Chemistry** Credit 3(2-3)
 (Formerly Chem. 621)
 A systematic study of the classes of aliphatic and aromatic compounds and individual examples of each. Structure, nomenclature, synthesis, and characteristic reactions will be considered. Illustration of the familiarity of organic substances in everyday life will be included. In the laboratory, preparation and characterization reactions will be performed.
- 1688. Advanced Organic Chemistry I** Credit 2(2-0)
 (Formerly Chem. 622)
 Recent developments in the areas of structural theory, stereochemistry, molecular rearrangement and mechanism of reactions of selected classes of organic compounds. Prerequisite: One year of Organic Chemistry or Chemistry 1687.
- 1689. Advanced Organic Chemistry II** Credit 2(2-0)
 (Formerly Chem. 623)
 A continuation of Chem. 1688.
- 1690. Organic Reactions** Credit 2(2-0)
 (Formerly Chem. 624)
 An advanced treatment of organic reactions designed to give the student a working knowledge of the scope and limitations of the important synthetic methods of organic chemistry. Prerequisite: Chemistry 1689.
- 1088. Special Problems in Organic Chemistry I** Credit 2(0-6)
 (Formerly Chem. 625)
 A laboratory course designed to introduce the student to the techniques of chemical research by solving minor problems in Organic Chemistry.
- 1089. Special Problems in Organic Chemistry II** Credit 3(0-9)
 (Formerly Chem. 625)
 A continuation of Chem. 1088.

- 1691. Selected Topics in Organic Chemistry** Credit 2(2-0)
(Formerly Chem. 626)
A lecture course on advanced topics in Organic Chemistry.
- 1692. Organic Preparations I** Credit 1(0-2)
(Formerly Chem. 627)
An advanced laboratory course. Emphasis is placed on the preparation and purification of more complex organic compounds. Prerequisite: One year of Organic Chemistry.
- 1693. Organic Preparations II** Credit 2(0-4)
(Formerly Chem. 627)
A continuation of Chem. 1692.
- 1694. Modern Analytical Chemistry** Credit 3(2-3)
(Formerly Chem. 631)
The theoretical bases of analytical chemistry are presented in detail. In the laboratory, these principles together with a knowledge of chemical properties are used to identify substances and estimate quantities in unknown samples.
- 1695. Advanced Analytical Chemistry I** Credit 2(2-0)
(Formerly Chem. 632)
A lecture course in which the theoretical bases of analytical chemistry and their application in analysis will be reviewed with greater depth than is possible in the customary undergraduate courses. Equilibrium processes including proton and electron transfer reactions and matter-energy interactions will be considered. Prerequisite: One year of Analytical Chemistry or Chemistry 1694.
- 1696. Advanced Analytical Chemistry II** Credit 2(2-0)
(Formerly Chem. 633)
A continuation of Chem. 1695.
- 1697. Electrometric Measurements** Credit 2(1-3)
(Formerly Chem. 634)
An advanced laboratory course designed to accompany or follow the courses in Advanced Analytical Chemistry. It will include p^H measurements, potentiometric, conductometric, and amperometric titrations and polarographic measurements. Prerequisites: One year of Analytical Chemistry, Chemistry 1694, or permission of the Chemistry Department.
- 1091. Special Problems in Analytical Chemistry I** Credit 2(2-0)
(Formerly Chem. 635)
A laboratory course designed to introduce the student to the techniques of chemical research by solving minor problems in Analytical Chemistry.
- 1092. Special Problems in Analytical Chemistry II** Credit 3(0-9)
(Formerly Chem. 635)
A continuation of Chem. 1091.
- 1699. Selected Topics in Analytical Chemistry** Credit 2(2-0)
(Formerly Chem. 636)
A lecture course on advanced topics in Analytical Chemistry.
- 1782. Principles of Physical Chemistry I** Credit 4(3-3)
(Formerly Chem. 641)
A review of the fundamental principles of physical chemistry, including

the derivation of the more important equations and their application to the solution of problems.

1783. Principles of Physical Chemistry II Credit 4(3-3)
(Formerly Chem. 642)

A continuation of Chem. 1782. May be taken concurrently with Chem. 1782.

1784. Chemical Thermodynamics Credit 2(2-0)
(Formerly Chem. 643)

An advanced course in which the laws of thermodynamics will be considered in their application to chemical processes. Prerequisite: Chemistry 1664 or 1783.

1785. Chemical Spectroscopy Credit 3(2-3)
(Formerly Chem. 644)

An advanced course in which the principles and applications of spectroscopy will be considered. Prerequisite: Chemistry 1664 or 1783.

1094. Special Problems in Physical Chemistry I Credit 2(0-6)
(Formerly Chem. 645)

A laboratory course designed to introduce the student to the techniques of chemical research by solving minor problems in Physical Chemistry.

1095. Special Problems in Physical Chemistry II Credit 3(0-9)
(Formerly Chem. 645)

A continuation of Chem. 1094.

1786. Selected Topics in Physical Chemistry Credit 2(2-0)
(Formerly Chem. 646)

A lecture course on advanced topics in Physical Chemistry Prerequisite: Chemistry 1664 or 1783.

1787. Electrochemistry Credit 2(2-0)
(Formerly Chem. 647)

A study of the principles and applications of electrochemistry. Prerequisite: Chemistry 1664 or 1783.

1788. Colloid Chemistry Credit 2(2-0)
(Formerly Chem. 648)

A study of the types of colloidal systems and the fundamental principles governing their preparation and behavior. Prerequisite: Chemistry 1664 or 1783.

1789. Chemical Kinetics Credit 2(2-0)
(Formerly Chem. 649)

Theory of rate processes; application to the study of reaction mechanisms. Prerequisites: Mathematics 3622 and Chemistry 1664 or 1783.

1097. Special Problems in Biochemistry I Credit 2(0-6)
(Formerly Chem. 655)

A laboratory course designed to introduce the student to the techniques of chemical research by solving minor problems in Biochemistry.

1098. Special Problems in Biochemistry II Credit 3(0-9)
(Formerly Chem. 655)

A continuation of Chem. 1097.

1794. **Selected Topics in Biochemistry** Credit 2(2-0)
 (Formerly Chem. 656)
 A lecture course on advanced topics in Biochemistry.
1799. **Thesis Research** Credit 6 Sem. Hrs.
 (Formerly Chem. 699)

Advanced Undergraduate and Graduate

Physical Science

1071. **Seminar in Physical Science for Elementary School Teachers** Credit 2(0-4)
 (Formerly Physical Science 501)

Preparation, presentation, and demonstration of subject matter for elementary school science. This course provides opportunity for full discussion and for student participation. Prerequisite: Minimum of three years teaching experience in upper elementary grades.

PLANT SCIENCE AND TECHNOLOGY

Samuel J. Dunn, Chairman

Office: 235 Carver Hall

FOR ADVANCED UNDERGRADUATES AND GRADUATES

1475. **Conservation, Drainage and Irrigation.** Credit 3(1-4)
 (Formerly Ag. Engr. 500)

Improvement of soil by use and study of conservation practices, engineering structures, drainage, and irrigation systems. (Prerequisite: Ag. Engr. 1441.)

1476. **Advanced Farm Shop.** Credit 3(1-4)
 (Formerly Ag. Engr. 502)

Care, operation and maintenance of farm shop power equipment. (Prerequisite: Ag. Engr. 1404.)

1477. **Special Problems in Agricultural Engineering.** Credit 3(0-6)
 (Formerly Ag. Engr. 503)

Special work in Agricultural Engineering on problems of special interest to the student. Open to seniors in Agricultural Engineering.

Crop Science

1478. **Plant Chemicals.** Credit 3(2-2)
 (Formerly Crop Science 500)

A study of the important chemical pesticides and growth regulators used in the production of economic plants. (Prerequisites Chem. 1612 and Pl. Sc. 1420.)

1479. **Crop Ecology.** Credit 3(3-0)
 (Formerly Crop Science 501)

The physical environment and its influence on crops; geographical distribution of crops.

1480. **Breeding of Crop Plants.** Credit 3(2-2)
(Formerly Crop Science 502)

Significance of crop improvements in the maintenance of crop yields; application of genetic principles and techniques used in the improvement of crops; the place of seed certification in the maintenance of varietal purity.

1481. **Special Problems in Crops.** Credit 3(3-0)
(Formerly Crop Science 503)

Designed for students who desire to study special problems in crops. Repeatable for a maximum of six credits. By consent of instructor.

1482. **Research Design and Analysis.** Credit 3(2-2)
(Formerly Crop Science 505)

Experimental designs, methods and techniques of experimentation; application of experimental design to plant and animal research; interpretation of experimental data. (Prerequisite Ag. Econ. 1184 or Math. 3624.)

FOR GRADUATE STUDENTS ONLY

1491. **Grass Land Ecology.** (Formerly Crop Sc. 634) Credit 2(2-0)

The use of grasses and legumes in a dynamic approach to the theory and practice of grass-land agriculture, dealing with the fundamental ecological principles and their application to management practices.

FOR ADVANCED UNDERGRADUATES AND GRADUATES

Soil Science

1484. **Special Problems in Soils.** Credit 3(3-0)
(Formerly Soil Sc. 504)

Research problems in soil for advanced students. By consent of instructor.

FOR GRADUATE STUDENTS ONLY

1498. **Soils of North Carolina.** (Formerly Soils 631) Credit 3(2-2)

A study of the factors basic to the understanding of the soils of North Carolina, their classification and properties as related to sound land-use and management.

FOR ADVANCED UNDERGRADUATES AND GRADUATES

Earth Science

FOR GRADUATE STUDENTS ONLY

1485. **Topics in Earth Science.** Credit 2(2-0)

A discussion of special topics from astronomy, geology, soil genesis, meteorology, oceanography, and physical geography.

1486. **Problem Solving in Earth Science.** Credit 3(0-6)

A laboratory-demonstration course involving identification of earth materials, measurements in environmental processes, and field observation on natural physical phenomena.

1487. **Seminar in Earth Science.** Credit 2(2-0)

A seminar concerned with recent developments in the earth sciences and related disciplines.

1494. The Physical Universe. (Formerly Earth Sc. 601) Credit 2(2-0)

This course is designed to give the student a broad general background in the earth's physical environment, its lithosphere, hydrosphere and atmosphere and their interaction on weather and climate. The physical nature of the stars, the sun and planets will also be studied in the light of modern concepts of space.

1495. Physical Geology. (Formerly Earth Sc. 602) Credit 2(2-0)

The development of the earth's surface, its material composition and forces acting upon its surface will be considered. Specific topics include origin of mountains and volcanos, causes of earthquakes, work of rivers, wind, waves, and glaciers. Prerequisite: Ea. Sci. 211, 501 or consent of instructor.

1496. Conservation of Natural Resources. Credit 2(2-0)
(Formerly Earth Sc. 604)

A descriptive course dealing with conservation and development of renewable natural resources encompassing soil, water and air, cropland, grassland and forests; livestock, fish, and wildlife; and recreational, aesthetic and scenic values. Attention will be given to protection and development of the nation's renewable natural resources base as an essential part of the national security, defense, and welfare.

Advanced Undergraduate and Graduate

Horticulture

1483. Special Problems. Credit 3(3-0)
(Formerly Hort. 501)

Work among special lines given largely by the project method for advanced undergraduate and graduate students who have the necessary preparation.

EDUCATION AND PSYCHOLOGY

Charles L. Hayes, Chairman
Office: 201 Hodgkin Hall

FOR ADVANCED UNDERGRADUATES AND GRADUATES

Education

2171. Materials and Methods in Teaching Reading. Credit 3(3-0)
(Formerly Education 504)

This course deals with the application of principles of learning and child development to the teaching of reading and the related language arts.

2172. Introduction to Adult Education. Credit 3(3-0)
(Formerly Education 505)

The history, philosophy, and general organization and administrative problems of adult education. Prerequisite: Psychology 2340.

2173. Methods in Adult Education. Credit 3(2-4)
(Formerly Education 506)

Methods of informal instruction, group leadership, conference planning, and techniques in handling various issues of interest to adults. For persons preparing to conduct adult education programs as well as those preparing

to serve as instructors or leaders in the public schools and/or in various agencies serving adults. Prerequisite: Education 2172.

- 2174. Principles of School Law.** Credit 3(3-0)
(Formerly Education 507)

The study of statutes and judicial decisions of North Carolina affecting public school education. Legal authority, powers, and liabilities of school personnel, legal control and limitations of school finance, curriculum, and property.

- 2175. Library Usage for Classroom Teachers.** Credit 2(2-4)
(Formerly Education 510)

A consideration of the study, collection, organization and graduation of instructional materials for educational materials centers at all grade levels; also includes methods and techniques for library usage for pupils and teachers, central library organization, library requisition practices and library classroom coordination of the instructional program. For pre-service and in-service teachers.

Guidance

- 2378. Introduction to Guidance.** Credit 2(2-0)
(Formerly 501)

A foundation course for prospective teachers, part-time or full time counselors who plan to do further work in the field of guidance or education. Special consideration will be given to the nature, scope, and principles of guidance services.

Psychology

- 2371. Theories of Personality Development.** Credit 3(3-0)
(Formerly Psyc. 501)

A course devoted to discussion of structural theories of personality and major theories of personality development from biological, cultural, and social points of view.

Special Education

- 2372. Introduction to Exceptional Children.** Credit 3(3-0)
(Formerly 501)

An over-view of the education needs of exceptional or "different" children in the regular classroom situation; emphasis placed on classroom techniques known to be most helpful to children having hearing losses, speech disorders, visual problems, emotional, social handicaps and intelligence deviation, including slow-learners and gifted children. An introduction to the area of special education. Designed for classroom teachers.

- 2373. Psychology of the Exceptional Child.** Credit 3(3-0)
(Formerly 502)

An analysis of psychological factors affecting identification and development of mentally retarded children, physically handicapped children, and emotionally and socially maladjusted children.

- 2374. Teaching the Slower Learner in the Regular Classroom.** Credit 3(3-0)
(Formerly 503)

A study of materials and methods for adjusting instruction in arithmetic, spelling, language, reading to the slower learning child in heterogeneous classes. Consideration given to discussion and study in the unit and activity program and the drill and skill program in relation to it.

2375. Measurement and Evaluation in Special Education. Credit 3(2-2)
(Formerly 504)

The selection, administration, and interpretation of individual tests; intensive study of problems in testing exceptional and extremely deviate children; consideration to measurement and evaluation of children that are mentally, physically, and emotionally or socially handicapped. Emphasis upon the selection and use of group tests of intelligence and the interpretation of their results.

2376. Mental Deficiency. Credit 3(3-0)
(Formerly 505)

A survey of types and characteristics of mental defectives; classification and diagnosis; criteria for institutional placement and social control of mental deficiency. Prerequisites: Special Education 2372 and 2373.

2377. Materials, Methods, and Problems in Teaching
Mentally Retarded Children. Credit 3(2-2)

Basic organization of programs for the education of the mentally retarded: classification and testing of mental defectives; curriculum development and principles of teaching intellectually slow children. Attention is also given to the provision of opportunities for observing and working with children who have been classified as mentally retarded. Prerequisites: Special Education 2372, 2373, 2375 and 2376.

FOR GRADUATE STUDENTS ONLY

Education

2180. Theory of American Public Education. Credit 3(3-0)
(Formerly 601)

Objectives, organization, development, administration, support and control of public education in the State.

2181. Introduction to Graduate Study Credit 2(2-0)
(Formerly 604)

Methods of research, interpretation of printed research data, and use of bibliographical tools will be introduced. Emphasis will be placed on Graduate-study expectations.

2182. Principles of Teaching. Credit 3(3-0)
(Formerly 605)

A study of the status of teaching as a profession in the United States; teacher obligations, responsibilities and opportunities for leadership in the classroom and community with special emphasis on principles of and procedures in teaching.

2183. Curriculum in the Elementary School. Credit 3(3-0)
(Formerly 606)

A fundamental course in curriculum development designed to prepare the student for effective participation in cooperative efforts to improve the curriculum. Attention is directed to curriculum issues and to desirable instructional practices in the major areas of curriculum.

2184. History of American Education. Credit 3(3-0)
(Formerly 607)

A study of the historical development of education in the United States emphasizing educational concepts and practices as they relate to political, social, and cultural developments in the growth of a system of public education.

- 2185. Philosophy of Education.** Credit 3(3-0)
(Formerly 608)
A critical study of and a philosophic approach to educational problems. The nature and aims of education in a democratic society, relation of the individual to society, interests and disciplines, play and work, freedom and control, subject matter and method.
- 2186. School Planning.** Credit 3(3-0)
(Formerly 609)
An examination of the principles governing the selection and landscaping of school grounds, location and design of buildings, and care of plant from standpoint of use, sanitation, health, and attractiveness.
- 2187. Curriculum in the Secondary School.** Credit 3(3-0)
(Formerly 610)
A fundamental course in curriculum development designed to prepare the student for effective participation in cooperative efforts to improve the curriculum. Attention is directed to curriculum issues and to desirable instructional practices in the major curriculum areas.
- 2188. Audio-Visual Aids Program.** Credit 3(3-0)
(Formerly 611)
Recognizing, planning and organizing for the possible use of audio-visual aids as enriching experiences for students as participants in the informal type of classroom program evolving out of a unit of instruction.
- 2189. Methods and Techniques of Research.** Credit 3(3-0)
(Formerly 612)
Careful analysis and study of research problems; techniques and methods of approach.
- 2190. Organization of Audio-Visual Programs.** Credit 3(3-0)
(Formerly 613)
The overall aim of this course is to develop in the persons enrolled competence in the utilization and administration of audiovisual programs in individual schools, school systems, colleges and universities, non-academic organizations, community, and adult groups. The course is designed for persons who are or plan to become coordinators of audiovisual programs, school administrators, adult and or community group leaders, and classroom teachers.
- 2191. Workshop in Audio-Visual Aids.** Credit 2(2-4)
(Formerly 614)
Designed for elementary and secondary school teachers, principals and supervisors in the resolution of problems associated with Audio-Visual Education.
- 2192. Problems and Trends in Teaching Social Science.** Credit 3(3-0)
(Formerly 615)
Survey of major problems in the broad field of Social Studies and consideration of improved ways of presentation and class economy, including lesson plans, assignments, visual aids, and other means of facilitating learning.
- 2193. Problems and Trends in Teaching Science.** Credit 3(3-0)
(Formerly 616)
Attention to major problems of the high school teacher of Science. Lessons plans, assignments, tests, etc., constructed and administered by each student in class. Visual aids, demonstration and laboratory techniques carried out.

- 2194. School Publicity and Public Relations.** Credit 3(3-0)
(Formerly 619)
Study of the interrelationships between the lay community and the schools. Appraisal and procedures, actual or proposed for improvement of the relationships.
- 2195. Educational Sociology.** Credit 3(3-0)
(Formerly 623)
The school as a social institution, school-community relations, social control of education, and structure of school society.
- 2196. Administration of the Elementary School.** Credit 3(3-0)
(Formerly 624)
Role of the elementary school principal; administrative structure and policies, curriculum development, guidance, and in-service education of teachers.
- 2197. Supervision of Elementary School.** Credit 3(3-0)
(Formerly 625)
The nature, theory and practice of supervision, and the supervisor's role in improvement of instruction.
- 2198. High School Administration.** Credit 3(3-0)
(Formerly 626)
A basic professional course for the principalship and for other administrative positions in junior high schools, senior high schools, and junior colleges. The materials adapted to the needs of those holding positions of these types and to experienced teachers who desire to prepare for such positions.
- 2199. High School Supervision.** Credit 3(3-0)
(Formerly 627)
A study of problems, techniques, and materials in the improvement of instruction in secondary schools. A course for principals, heads of departments, and supervisors.
- 2280. Pupil Personnel Administration.** Credit 2(2-0)
(Formerly 630)
Pupil accounting, records and reports, financial reports, school census, special school records, pupil adjustment and progress, health and safety and legal aspects of pupil administration.
- 2281. Educational Statistics.** Credit 3(3-0)
(Formerly 631)
A course designed to develop the student's command of the essential vocabulary, concepts, and techniques of descriptive statistics as applied to problems in education and psychology.
- 2282. Seminar in Educational Problems.** Credit 3(1-4)
(Formerly 632)
Intensive study, investigation, or research in selected areas of education; reports and constructive criticism. Prerequisites: A minimum of 39 hours in prescribed graduate courses, and consent of instructor.
- 2283. The Community College and Post Secondary Education.** Credit 3(3-0)
(Formerly 633)
Philosophy, organization, and character of school programs needed to meet educational needs of individuals who desire to continue their education on the post-secondary level. Special attention is given to the trends

in developing community colleges. Prerequisites: Ed. 605, 606; Psy. 621 or three or more years of teaching experience.

- 2284. Principles of College Teaching.** Credit 2(2-0)
(Formerly 634)

Principles involved in teaching at the college level; techniques of teaching aids; criteria used in evaluation. Prerequisite: Phy. 621.

- 2285. Supervision of Student Teachers.** Credit 3(3-0)
(Formerly 635)

A basic professional course for classroom teachers, principals, and supervisors who serve in an official capacity directing the field-laboratory experiences of student teachers.

- 2286. Issues in Elementary Education.** Credit 3(3-0)
(Formerly 639)

A critical review of the background and functions of the elementary school as a social institution. Attention is given to increasing the ability to formulate the generalizations of development and learning into a meaningful framework for appraising current educational thinking and practice and predicting the direction in which these must move if elementary school programs are to continue to improve.

- 2287. Issues in Secondary Education.** Credit 3(3-0)
(Formerly 640)

An analysis of the role of the high school as an educational agency in a democracy. Attention is given to: (1) philosophical, Psychological, and sociological bases for the selection of learning experiences; (2) contrasting approaches to curriculum construction; (3) teaching methods and materials; (4) evaluation procedures; and, (5) school-community relationships.

- 2288. Current Research in Elementary Education.** Credit 3(3-0)
(Formerly 641)

A critical analysis of the current research in elementary education and the implications of such for elementary school educative experiences.

- 2289. Current Research in Secondary Education.** Credit 3(3-0)
(Formerly 642)

A critical analysis of the current research in secondary education and the implications of such for high school educative experiences.

- 2290. Workshop in Methods of Teaching Arithmetic.** Credit 3(3-0)
(Formerly 643)

Modern concepts concerning the teaching of arithmetic will be discussed.

- 2291. Workshop in Methods of Teaching Language Arts.** Credit 3(3-0)
(Formerly 644)

Designed for teachers of English in the elementary and secondary schools in which instruction in Language Arts, Literature, Grammar, Composition, etc., are considered.

- 2292. Thesis Research.** Credit 6(0-12)
(Formerly 699)

Guidance

- 2380. Measurement for Guidance.** Credit 3(2-4)
(Formerly 602)

A course designed to develop understandings and skills in collecting and

interpreting data concerning the individual, and the use of such data in case studies and follow-up procedures.

2381. Techniques of Individual Analysis. Credit 2(2-0)
(Formerly 603)

A study of educational and vocational testing with reference on a general frame work for using statistical information in several types of counseling problems. Statistics necessary for the evaluation of psychological and educational measurement will be considered. This course also includes the measurement of aptitude including special aptitude with reference to prediction of proficiency in various occupations and curricula.

2382. Educational and Occupational Information. Credit 3(3-0)
(Formerly 604)

Where and how to get facts and assemble information about occupations and education. To learn the methods of using collected information.

2383. Introduction to Counseling. Credit 3(3-0)
(Formerly 605)

A course designed to give information regarding the background and theories of counseling. Consideration will be given to the counselor's function, counseling interview, use of records, and the school counselor's place in a total personnel program.

2384. Case Studies in Counseling. Credit 2(2-1)
(Formerly 606)

Development of a basic understanding of the case study technique as used in counseling. Compilation, analysis, diagnosis and treatment of theoretical and actual counseling case histories.

2385. Guidance Practicum. Credit 3(1-4)
(Formerly 607)

The course provides practice in the job of the high school counselor with students of high school age. Primary emphasis will be placed on counseling but all phases of the work of the counselor will be covered.

2386. Organization and Administration of Guidance Services. Credit 2(2-0)
(Formerly 608)

This course is designed to afford the student an understanding of methods by which guidance policies and services may be properly implemented through organizational framework; consequently, leading to more effective organization of current guidance programs.

2387. Research Seminar. Credit 3(1-4)
(Formerly 609)

This course deals specifically with critical discussions of research projects in progress and of the related literature to such projects. An acceptable written report is required. The course is required of all Guidance majors in the degree program and others seeking the School Counselor's certificate. Prerequisite: Guidance 2385.

Psychology

2388. Mental Hygiene for Teachers. Credit 3(3-0)
(Formerly 617)

An analysis of the function of mental hygiene in the total educative process. Attention is given to the basic principles of mental health as these

apply to pupils and teachers alike; to the types of adjustment; to the development of personality; and to psychotherapeutic techniques for the restoration of mental health. Prerequisite: Psychology 2390

2389. Child Growth and Development. Credit 3(3-0)
(Formerly 618)

A comprehensive analysis of physical, mental, emotional, and social growth and development from birth through adolescence.

2390. Educational Psychology. Credit 3(3-0)
(Formerly 621)

A study of the applications of psychological principles to educational practices.

2391. Measurement and Evaluation. Credit 3(2-2)
(Formerly 622)

Measurement techniques and interpretation of group surveys and individual pupil diagnosis will be considered.

ENGLISH

Walter C. Daniel, Chairman*

Office: 316 Hodgin Hall

In order to be accepted as a candidate for the degree Master of Science in Education with concentration in English, the student must have earned the following in undergraduate studies:

Twenty-four (24) semester hours in English courses above freshman composition. The hours must include at least three semester hours of Shakespeare, three of American literature, three of English literature, three of world literature or contemporary literature, and three of advanced grammar and composition.

A student who fails to meet these qualifications will be expected to satisfy the requirements by enrolling in undergraduate courses before beginning his graduate studies in English.

The student who writes a thesis must complete the following requirements in courses in addition to the core curriculum in Education: English 2481, 2485, and 2499; Education 2292 (thesis research); 10 semester hours selected from the following: English 2477, 2478, 2479, 2486, 2487, 2490 and 2489; and one two-hour elective.

The student not writing a thesis must complete the following requirements in courses in addition to the core curriculum in Education: English 2481, 2485, 2499, 2470, or 2476; Education 2282 (Seminar); 14 semester hours selected from the following: English 2477, 2478, 2479, 2485, 2486, 2487, 2490, 2489, and 2492; and 4 hours of electives.

COURSES FOR ADVANCED UNDERGRADUATES AND GRADUATES

2460. Grammar and Composition for Teachers. Credit 2(2-0)
(Formerly English 500)

A course designed to provide a review of fundamentals of grammar

* Effective July 1, 1966.

and composition for the elementary or secondary school teacher. Not accepted for credit toward undergraduate or graduate concentration in English.

- 2467. Voice in Speech for Teachers.** Credit 2(2-1)
(Formerly English 510)

A course designed to provide a review of the fundamental skills of oral communication and instruction in public speaking. Not accepted for credit toward undergraduate or graduate concentration in English.

- 2470. Community and Creative Dramatics.** Credit 3(3-0)
(Formerly English 515)

An introduction to basic elements and techniques of play production: acting, direction, stagecraft, lighting, costuming, play selection.

- 2471. Elizabethan Drama.** Credit 3(3-0)

Chief Elizabethan plays, tracing the development of dramatic forms from early works to the close of the theaters in 1642. Prerequisite: English 2437 and 2438, 2436 or 2485.

- 2476. Children's Literature.** Credit 3(3-0)
(Formerly English 520)

A study of the types of literature designed especially for students in the upper levels of elementary school and in junior high school. Prerequisites: Graduate standing or English 2402, Humanities 2434-2435.

- 2477. Mythology.** Credit 3(3-0)
(Formerly English 525)

A study of the myths which form the basis for allusions in the literature of Western civilization. Prerequisite: Graduate standing or English 2402, Humanities 2434-2435.

- 2478. The American Novel.** Credit 3(3-0)
(Formerly English 540)

A history of the American novel from Cooper to Faulkner. Melville, Twain, Howells, James, Dreiser, Lewis, Hawthorne, Faulkner, Hemingway will be included. Prerequisite: English 2436 or 2485.

- 2479. The Negro Writer in American Literature.** Credit 3(3-0)
(Formerly English 541)

A study of prose, poetry, and drama by American authors of Negro ancestry. Their works will be studied in relation to the cultural and literary traditions of their times. Dunbar, Chestnutt, Johnson, Cullen, Bontemps, Hughes, Wright, Ellison, Baldwin, and Yerby will be included. Graduate standing or English 2402, Humanities 2434-2435.

COURSES FOR GRADUATES ONLY

(English 2485 is a prerequisite for all courses numbered above 2485)

- 2480. Language Arts for Elementary Teachers.** Credit 3(2-2)
(Formerly 501) Not accepted for credit toward concentration in English.

A course designed to provide elementary school teachers with an opportunity to discuss problems related to the language arts taught in the elementary school.

- 2481. History and Structure of the English Language.** Credit 3(3-0)
(Formerly 606, 607)
A study of the changes in the English language—syntax, vocabulary, spelling, pronunciation, and usage—from the fourteenth century through the twentieth century.
- 2482. Contemporary Practices in Grammar and Rhetoric.** Credit 3(3-0)
A course designed to provide secondary teachers of English with experiences in Introduction to Linguistics applied to modern grammar and composition.
- 2485. Literary Analysis & Criticism.** Credit 3(3-0)
(Formerly 610, 611)
An introduction to intensive textual analysis of poetry, prose fiction, prose non-fiction, and drama.
A study of basic principles and practices in literary criticism and of the various schools of criticism from Plato to Eliot.
- 2486. Milton.** Credit 3(3-0)
(Formerly 621) Prerequisite: English 2485.
A study of the works of Milton in relation to the cultural and literary trends of seventeenth century England. Emphasis is placed upon Milton's poetry.
- 2487. Eighteenth Century English Literature.** Credit 3(3-0)
(Formerly 625) Prerequisite: English 2485.
A study of the major prose and poetry writers of the eighteenth century in relation to the cultural and literary trends. Defoe, Swift, Fielding, Addison, Pope, Johnson, and Blake will be included.
- 2489. Studies in American Literature.** Credit 3(3-0)
(Formerly 627) Prerequisite: English 2485.
A study of major American prose and poetry writers.
- 2490. Romantic Prose and Poetry.** Credit 3(3-0)
(Formerly 626) Prerequisite: English 2485.
A study of nineteenth century British and American authors whose works reveal characteristics of Romanticism. Wordsworth, Coleridge, Shelley, Keats, Byron, Lamb, Carlyle, De Quincey, Emerson, Thoreau, Poe, and Whitman will be included.
- 2491. Modern British and Continental Fiction.** Credit 3(3-0)
(Formerly 640) Prerequisite: English 2485.
A study of British and European novelists from 1914 until the present. Included in the study are Joyce, Kafka, Gide, Mann, and Camus.
- 2492. Restoration and 18th Century Drama.** Credit 3(3-0)
(Formerly 631) Prerequisite: English 2485.
A study of the theatre and drama in relation to the cultural trends of the period. Etherege, Farquhar, Vanbrugh, Congreve, Fielding, Gay, Steele, Goldsmith, and Sheridan will be included.
- 2499. Seminar.** Credit 3(3-0)
(Formerly 650) Prerequisite: 15 hours of graduate-level courses in English.
Provides an opportunity for presentation and discussion of thesis, as well as selected library or original research projects from non-thesis candidates.

FOREIGN LANGUAGES

Waverlyn N. Rice, Chairman

Office: 312 Hodgkin

COURSES IN FRENCH

COURSES FOR ADVANCED UNDERGRADUATES AND GRADUATES

2571. Problems and Trends in Foreign Languages. Credit 3(3-0)
(Formerly French 501)

Problems encountered by teachers given consideration. Place and purpose of foreign language in the curriculum today.

2572. Oral Course for Teachers of Foreign Languages. Credit 3(3-0)
(Formerly French 502)

Designed for teachers of foreign languages to improve pronunciation and spelling.

2573. Research in the Teaching of Foreign Languages. Credit 3(3-0)
(Formerly French 503)

Open to students who are interested in undertaking the study of a special problem in the teaching of a foreign language.

2574. French Literature of the Seventeenth Century. Credit 3(3-0)
(Formerly French 302)

Course presents Classicism through masterpieces of Corneille, Racine, Moliere and other authors of the "Golden Period" in French letters. Conducted in French.

2575. French Literature of the Eighteenth Century. Credit 3(3-0)
(Formerly French 303)

To study in particular the life and works of Montesquieu, Voltaire, Rousseau, and the Encyclopedists.

2576. French Literature in the Nineteenth Century. Credit 3(3-0)
(Formerly French 304)

Study of the great literary currents of the Nineteenth century, Romanticism and Realism.

2577. The French Theatre. Credit 3(3-0)
(Formerly French 504)

A thorough study of the French theatre from the Middle Ages to the present.

2578. The French Novel. Credit 3(3-0)
(Formerly French 505)

A study of the novel from the Seventeenth Century to the present.

2579. French Syntax. Credit 3(3-0)
(Formerly French 506)

Designed to teach grammar on the more advanced level.

FOR GRADUATE STUDENTS ONLY

2580. Advanced Reading and Composition. Credit 3(3-0)
(Formerly 601)

A composition course with emphasis on idiomatic expressions.

- 2581. Romantic Movement in France (1820-1848)** Credit 3(3-0)
(Formerly 602)

Background study of Chateaubriand and Madame de Stael. Emphasis will be placed on Lamartine, Hugo, Vigny, and Musset in poetry. Other genres e.g., the theatre, novel, etc. will be studied.

- 2582. Seminar in Foreign Languages.** Credit 1(1-0)
(Formerly 603)

Scholarly papers from students, faculty, and guest lecturers will be presented. Scholarly papers are required of all candidates for a degree with concentration in French.

- 2583. Contemporary Literary Criticism.** Credit 3(3-0)
(Formerly 604)

Methods and purposes of literary criticism and of French literary critics.

- 2584. Independent study in Foreign Languages** Credit 3(3-0)

INDUSTRIAL EDUCATION

George C. Gail, Acting Chairman

Office: 123 Graham

For Advanced Undergraduates and Graduates

Industrial Arts

- 3573. Advanced General Metals I.** Credit 3(2-2)
(Formerly 510)

A course in metal work for teachers of industrial arts. Emphasis will center on art metal (including plating, finishes, etc.), advanced bench metal, sheet metal operations and machine shop. Specifications of equipment, organization of instruction sheet, special problems and material will be covered as well as shop organization. Prerequisite: 3525 or equivalent.

- 3574. Advanced General Metals II.** Credit 3(2-2)
(Formerly 511)

Advanced course in metal work for the industrial arts teacher or other persons who may require more specialization in an area of metalwork. With the necessary prerequisites, the student may select any of general metals for concentration and special study. Construction of projects, special assignments, etc. will be made after the area of work is selected and after consultation with the instructor. Prerequisite: 3573.

- 3575. Graphic Arts.** Credit 3(2-2)
(Formerly 611)

Fundamentals of typography, hand composition, press operation, block printing, silk screen techniques, and other reproduction methods, also bookbinding.

- 3576. Plastic Craft.** Credit 3(2-2)
(Formerly 506)

For teachers of industrial arts, arts and crafts and those interested in plastics as a hobby. Operations in plastics analyzed and demonstrated; design, color, kinds, and uses of plastics, how plastics are made and sold; vocational information. Projects suitable for class use constructed.

- 3577. Handcrafts.** Credit 3(2-2)
(Formerly 508)

Craft materials and their application to industrial arts shops; principles and techniques of crafts suitable for industrial arts craft activities; for industrial arts majors and others interested in craft experience.

Industrial Education

- 3579. Industrial Cooperative Programs.** Credit 3(3-0)
(Formerly I. E. 520)

For prospective teachers of vocational education. Principles, organization and administration of industrial cooperative programs.

- 3580. Organization of Related Study Materials.** Credit 3(3-0)
(Formerly I. E. 521)

Principles of scheduling and planning pupils' course and work experience, selecting and organizing related instructional materials in I. C. T. programs.

- 3581. Teaching Problems in Industrial Education.** Credit 3(3-0)
Formerly I. E. 502)

Problems involve objectives, curriculum content, text and reference books, teaching aids, class organization and administration, safety programs, teaching techniques and plans, remedial instructions, industry and community relations. Prerequisites: I. E. 3552, 3555.

- 3582. History and Philosophy of Industrial Education.** Credit 3(3-0)
(Formerly I. E. 504)

Chronological and philosophical development of industrial education with special emphasis on its growth and function in American schools.

FOR GRADUATE STUDENTS ONLY

Industrial Arts

- 3584. Advanced Furniture Design and Construction.** Credit 3(2-2)
(Formerly I. A. 608)

Laws, theories and principles of aesthetic and structural design, planning, designing, pictorial sketching and furniture drawing. Laboratory work involving setting up, operating, and maintaining furniture production equipment, plus forms, requisitions, orders, invoices, stock bills, buying and professional problems. Permission from instructor required.

- 3585. Electricity-Electronics.** Credit 3(2-2)
(Formerly I. A. 609)

For teachers and prospective teachers of Industrial Arts. Emphasis placed on the selection and construction of projects useful in school shops, development of selected information. Theory and fundamentals of electricity and radio communication, selecting equipment and supplies, course organization and instructional materials.

- 3586. Industrial Arts and Crafts Workshop.** Credit 3(2-2)
(Formerly 600)

For elementary school teachers and others interested in crafts; materials, tools, processes and activities for programs without specialized

shops; of value to those employed in activity-type programs offered in summer sessions. Non-credit for industrial education majors.

3587. Industrial Arts Seminar I. Credit 3(2-2)
(Formerly 512)

An advanced study in modern technology, may deal with recent developments, trends, practices and procedures of manufacturing and construction industries. Individual and group research and experimentation, involving selection, design, development and evaluation of technical reports and instructional materials for application in Industrial Arts program. Prerequisite: 3560 or 3590, two credits may be applied to advanced degree.

3588. Industrial Arts Seminar II. Credit 3(2-2)
(Formerly 507)
Continuation of 3587.

3589. Industrial Arts Seminar III. Credit 3(2-2)
(Formerly 509)
Continuation of 3588.

3590. Comprehensive General Shop. Credit 3(2-2)
(Formerly I. A. 613)

Problems involving wood, electricity-electronics, graphic arts, metal and crafts; emphasis on organization, instructional materials and procedures.

3591. Advanced Drafting Techniques. Credit 3(2-2)
(Formerly I. A. 614)

For teachers with undergraduate preparation or trade experience. School techniques, standards, conventions, devices, experimentation in advance of opportunities offered in regular courses. Use of literature and research expected.

3592. Construction and Use of Instructional Aids. Credit 3(2-2)
(Formerly I. A. 623)

The analysis of various instructional aids useful in shop teaching, planning, designing, and construction of various teaching aids. Facilities for laboratory work provided.

Industrial Education

3593. General Industrial Education Programs. Credit 3(3-0)
(Formerly I. E. 631)

Development of local, state, and national levels of day industrial schools, evening industrial schools, part-time day and evening schools. Their organization types, courses of study, scope of movement, study of special student groups, fees and charges, building and equipment.

3594. Supervision and Administration of Industrial Education. Credit 3(3-0)
(Formerly I. Ed. 604)

Relation of industrial education to the general curriculum and the administration responsibilities entailed. Courses of study, relative costs, coordination problems, class and shop organization, and the development of an effective program of supervision will be emphasized.

3595. Test in Industrial Subjects. Credit 3(3-0)
(Formerly I. Ed. 632)

Study and application of principles of achievement test construction to shop and drawing subjects; evaluation of results.

- 3596. Curriculum Laboratory in Industrial Education.** Credit 3(3-0)
(Formerly I. Ed. 605)

Principles and preparation of instructional materials for classroom use. Students select and develop some significant areas of instruction for use in a shop or related subject class. Courses of study that function in teaching situations are prepared. Opportunity afforded to analyze existing courses of study.

- 3597. Research and Literature in Industrial Education.** Credit 3(3-0)
(Formerly 606)

Research techniques applied to technical and educational papers and thesis; classification of research; selection, delineation and planning; collection, organization and interpretation of data; survey of industrial education literature.

- 3598. Industrial Education Seminar.** Credit 3(3-0)
(Formerly I. A. 612)

Designed to enable non-thesis graduate majors to complete educational and technical investigations. Each student will be expected to plan and complete a research paper and present a summary of his findings to the seminar.

- 3599. Thesis Research in Industrial Education.** Credit 3
(Formerly I. Ed. 699)

HEALTH AND PHYSICAL EDUCATION

William M. Bell, Chairman
Office: Moore Gymnasium

COURSES IN HEALTH EDUCATION

FOR ADVANCED UNDERGRADUATES AND GRADUATES

- 2771. Personal, School, and Community Health Problems.** Credit 3(3-0)
(Formerly 502)

A study of personal, school and community health problems and resources. Emphasis is placed on the control of communicable diseases, healthful school living and the development in individuals of the scientific attitude and a positive philosophy of healthful living.

- 2772. Methods and Materials in Health Education for Elementary and Secondary School Teachers.** Credit 3(3-0)
(Formerly 503)

A study of the fundamentals of the school health program, pupil needs, methods, planning instruction, teaching techniques, selection and evaluation of materials for the elementary and secondary programs, and the use of the community resources.

COURSES IN PHYSICAL EDUCATION

FOR ADVANCED UNDERGRADUATES AND GRADUATES

- 2775. Current Problems and Trends in Physical Education.** Credit 3(3-0)
(Formerly 501)

A practical course for experienced teachers. Consideration given to individual problems in physical education with analysis of present trends.

2776. Administration of Interscholastic and Intramural Athletics.

(Formerly 504)

Credit 3(3-0)

A study of the relation of athletics to education, and the problems of finance, facilities, scheduling, eligibility, and insurance. Consideration given to the organization and administration of intramural activities in the school program.

2778. Current Theories and Practices of Teaching Sports. Credit 3(3-0)

(Formerly 506)

Methodology and practice at various skill levels. Emphasis placed on seasonal activity.

2777. Community Recreation.

Credit 3(3-0)

(Formerly 505)

A study of the recreational facilities and problems with consideration being given to the promotion of effective recreational programs in rural and urban communities.

MATHEMATICS

Theodore R. Sykes, Chairman

Office: Graham Bldg.

In order to be accepted as an applicant to the Master's degree program in Education with a concentration in Mathematics, a student must have earned the following undergraduate studies:

Thirty (30) semester hours in mathematics including differential and integral calculus, differential equations, and statistics.

A student who fails to meet these qualifications will be expected to satisfy the requirements by enrolling in undergraduate courses before beginning his graduate studies in mathematics.

The student who writes a thesis must complete the following requirements in courses in addition to the core curriculum in Education: 3670, 3672, 3673, 3674, and 3694; Education 2292 (Thesis Research), five additional hours selected from courses in mathematics, one of which must be from the series 3690-3696. Additional electives may be taken in Education or Mathematics.

The student not writing a thesis must complete the following in courses in addition to the core courses in Education: Mathematics 3670, 3673, 3674, 3682, and 3694; nine semester hours selected from the following: Mathematics 3669, 3671, 3690, 3691, 3692, 3693, 3695, and 3696; Education 2282 and such other courses as the advisor recommends as electives.

Advanced Undergraduate and Graduate

**3670. Introduction to Modern Mathematics for
Secondary School Teachers.**

Credit 3(3-0)

(Formerly Mathematics 502)

Elementary theory of sets, elementary logic and postulational systems, nature and methods of mathematical proofs, structure of the real number system. Open only to inservice teachers, or by permission of Department of Mathematics.

- 3671. Algebraic Equations for Secondary School Teachers.** Credit 3(3-0)
(Formerly Math. 501)

Algebra of sets, solution sets for elementary equations, linear equations and linear systems of equations, matrices and determinants with applications to the solution of linear systems. Prerequisite: Math. 3670.

- 3672. Modern Algebra for Secondary School Teachers.** Credit 3(3-0)

Sets and mappings, properties of binary operations, groups, rings, integral domains, vector spaces and fields. Prerequisite: Math. 3670.

- 3673. Modern Analysis for Secondary School Teachers.** Credit 3(3-0)

Properties of the real number system, functions, limits, sequences, continuity, differentiation and differentiability, integration and integrability. Prerequisite: Math. 3670.

- 3674. Modern Geometry for Secondary School Teachers.** Credit 3(3-0)

Re-examination of Euclidean geometry, axiomatic systems and the Hilbert axioms, introduction to projective geometry, other non-euclidean geometries. Prerequisite: Math. 3670.

- 3676. Mathematics for Chemists.** Credit 3(3-0)
(Formerly Math. 509)

This course will review those principles of mathematics which are involved in chemical computations and derivations from general through physical chemistry. It will include a study of significant figures, methods of expressing large and small numbers, algebraic operations, trigonometric functions, and an introduction to calculus.

- 3677. Arithmetic of Elementary Teachers.** Credit 3(3-0)
(Formerly Math. 510)

This course affords a background of the beginning numbers, concepts and counting, a study of various number bases, and fundamental processes and their application and problem solving. No credit toward a degree in mathematics.

- 3682. Elements of Set Theory and Topology.** Credit 3(3-0)
(Formerly Math. 515)

Operations on sets, relations, correspondences, comparison of sets, functions, ordered sets, general topological spaces, metric spaces, continuity, connectivity, compactness, homeomorphic spaces, general properties of T-spaces. Prerequisite: Math. 3622.

- 3683. Mathematical Statistics.** Credit 3(3-0)
(Formerly Math. 516)

Introduction to probability, distribution functions and moment-generating functions, frequency distribution of two variables, development of chi-square, student's "T" and "F" distributions. Prerequisite: Math. 3622.

- 3684. Methods of Applied Statistics.** Credit 3(3-0)
(Formerly Math. 517)

Presents the bases of various statistical procedures. Applications of normal, binomial, Poisson, chi-square, students' "T" and "F" distributions. Tests of hypotheses, power of tests, statistical inference, regression and correlation analysis and analysis of variance. Prerequisite: Math. 3624.

- 3686. Mathematics of Life Insurance.** Credit 3(3-0)
(Formerly Math. 518)

Probability, mortality table, life insurance, annuities, endowments, computation of net premiums, evaluation of policies, construction and use of tables. Prerequisite: Math. 3624.

3687. Theory of Numbers. Credit 3(3-0)
(Formerly Math. 521)

Divisibility properties of the integers, Euclid algorithm, congruences, diophantine equations, number-theoretic functions, and continued fractions. Prerequisite: Twenty hours of college mathematics.

FOR GRADUATE STUDENTS ONLY

3690. Theory of Functions of A Real Variable I. Credit 3(3-0)
(Formerly Math. 600)

Point set theory, metric spaces, measurable sets, measurable functions, Lebesgue integral of a bounded function. L_2 -spaces. Prerequisites: Math. 3662, 3663 and 3682.

3691. Theory of Functions of A Real Variable II. Credit 3(3-0)
(Formerly Math. 601)
Continuation of Mathematics 600.

3692. Theory of Functions of A Complex Variable I. Credit 3(3-0)
(Formerly Math. 602)

Complex numbers, elementary functions, analytic functions, residue calculus, conformal mapping, Taylor and Laurent expansions. Prerequisites: Math. 3662 and 3663.

3693. Theory of Functions of A Complex Variable II. Credit 3(3-0)
(Formerly Math. 603)
Continuation of Mathematics 3692.

3694. Projective Geometry. Credit 3(3-0)
(Formerly Math. 604)

Homogenous coordinates, linearly dependent points and lines, principle of duality, harmonic points, harmonic lines, conics, projective and affine transformations. Prerequisites: Math. 3671, 3643 and 3667.

3695. Special Topics in Algebra. Credit 3(3-0)
(Formerly Math. 605)

This course treats advance topics in algebra which do not receive full development in the prerequisite courses. Prerequisites: Math. 3664-3665 or Math. 3667-3668.

3696. Special Topics in Analysis. Credit 3(3-0)
(Formerly Math. 606)
Advance topics in analysis.

MUSIC

Howard T. Pearsall, Chairman

Office: Frazier Hall

FOR ADVANCED UNDERGRADUATES AND GRADUATES

2680. Music in the Elementary Schools Today. Credit 3(3-0)
(Formerly 534)

Selection and presentation of the rote songs; the child's voice in singing —its care and development; the introduction and development of music reading; rhythmic development; creative music; and the listening program.

2681. Music in the Secondary Schools Today. Credit 3(3-0)
(Formerly 535)

Techniques of vocal and instrumental music instruction in the junior and senior high schools; the general music class; the organization, administration, and supervision of music programs. This course includes the adolescent's voice and its care; the testing and classification of voices; operatta production; the instrumental program, with emphasis on instrumental pertinent to the secondary music curriculum.

2682. Choral Conducting of School Music Groups. Credit 2(0-4)
(Formerly 536)

2683. Instrumental Conducting of School Music Groups. Credit 2(0-4)
(Formerly 537)

The skills of conducting with literature for beginners, intermediate, and advanced high school bands and orchestras.

- 2684 The Psychology of Music. Credit 3(3-0)
(Formerly 538)

The use of psychology in the learning and teaching of music.

FOR GRADUATE STUDENTS ONLY

2685. Advanced Music Appreciation. Credit 2(1-2)
(Formerly Music 603)

Emphasis on large music forms—Boch's *B Minor Mass* and *Six Brandenburg Concertos*; Mozart's *Don Giovanni*; Beethoven's *Symphony No. IX*; Schubert's *Symphony in C Major* and the *Trout Quintet*; Berlioz's *Symphony Fantastique*; Brahm's *Symphony No. IV*; Bizet's *Carmen*; Verdi's *Aida*; Wagner's *Lohengrin*; Debussy's *Afternoon of a Faun*; Bartok's *Concerto for Orchestra*; Berg's *Wozzeck*; Hindemith's *Mathis der Maler*; and others.

PHYSICS

Donald A. Edwards, Chairman

Office: 109 Cherry Hall

FOR ADVANCED UNDERGRADUATES AND GRADUATES

3880. General Physics for Science Teachers I. Credit 3(2-2)
(Formerly Phys. 501)

For persons engaged in the teaching of science. Includes two hours of lecture demonstration and one two-hour laboratory period per week. Emphasis is placed upon understanding the basic principles of physics. Both courses may be combined during a single semester for double credit. For science teachers only.

3881. General Physics for Science Teachers II. Credit 3(2-2)
(Formerly Phys. 540)

Includes electric fields potentials, direct current circuits, chemical and thermal emf's, electric meters, and alternating currents. For science teachers only. Prerequisites: General Physics.

3884. Modern Physics for Science Teachers I. Credit 2(2-0)
(Formerly Phys. 580)

An introductory course covering the usual areas of modern physics. Both courses may be combined during a single semester for double credit. For science teachers only. Prerequisite: General Physics.

3885. Modern Physics for Science Teachers II. Credit 2(2-0)
(Formerly Phys. 581)

A continuation of Physics 3884.

SOCIAL SCIENCES

Virgil C. Stroud, Chairman

Office: 308 Hodgin

FOR ADVANCED UNDERGRADUATES AND GRADUATES

Economics

2876. Economic Understanding. Credit 2(2-0)
(Formerly Ec. 501)

An analysis of the institutional organization and functions of the American economy. Special references will be made to the state of North Carolina.

2877. Comparative Economic Systems. Credit 3(3-0)
(Formerly Ec. 502)

A description and analytical study of the various systems that have developed in different countries at different times; motivations, production and distribution patterns.

History

2878. The British Colonies and the American Revolution. Credit 3(3-0)
(Formerly History 501)

The evolution of colonial institutions, growth of the American colonies, the American Revolution and its aftermath.

2879. Economic History of the United States, 1787-1865. Credit 3(3-0)
(Formerly History 503)

A study of pre-industrial America with special emphasis on agriculture, commerce, transportation, banking and industry.

2880. Economic History of the United States Since 1865. Credit 3(3-0)
(Formerly History 504)

A treatment of the American economy in the industrial capitalism, finance capitalism, business organization and the relationship between government and business.

2881. Reconstruction, 1875-1877. (Formerly History 607) Credit 3(3-0)

This course is preceded by a summary of the Civil War. It then treats the historiography of the Reconstruction period, the reconstruction of the South and restoration of the Union.

Political Science

2976. Federal Government. (Formerly Pol. Sc. 501) Credit 3(3-0)

An intensive study of the federal government and its operations, federal organization, departments, independent offices, legislation, regulations, control and encouragement of enterprises by educational programs and research.

2977. State and Local Governments. (Formerly Pol. Sc. 502) Credit 3(3-0)

A study of State and Local Governments and their power to regulate, control and promote the general welfare, labor and health laws, educational programs and other services.

Sociology

2979. Current Economic and Social Problems. Credit 3(3-0)
(Formerly Soc. 502)

A practical course in applied economics and sociology dealing with analysis of present trends in government, economics, industry, agriculture and the social implications of these trends. Open to seniors by permission.

2980. Population Problems. Credit 3(3-0)
(Formerly Soc. 506)

Introduction to various phases of population study; special attention will be given to the population explosion and problems created by mankind-in-motion; various theories of population growth will be considered. Open to seniors by permission.

2981. Cultural Anthropology. Credit 3(3-0)
(Formerly Ant. 401)

Special emphasis upon acculturation. Description and historical reviews of contacts of societies with different cultural traditions; analysis of interaction and resulting interpretation of cultures.

COURSES FOR GRADUATES ONLY

Economics

2882. Labor and Industrial Relations. Credit 2(2-0)
(Formerly Ec. 601)

Development and structure of American unions; theories of union growth, economics of collective bargaining and wage determination; and survey of labor legislation.

2883. Government Economic Problems. Credit 2(2-0)
(Formerly Ec. 602)

This course will consider the growth of public expenditures, revenues, and debt of the United States; theories of taxation, and tax incidence; and the effects of public expenditures and taxes on economic growth.

Geography

2885. World Geography. (Formerly Geog. 501) Credit 3(3-0)

This course will consider man's relation to soil, minerals, and climate. Emphasis will be placed on physiography and human progress.

2886. Geography of North America. (Formerly Geog. 603) Credit 3(3-0)

A Regional study of North America. A study of climates, landforms, soils, flora and fauna, ocean and coast lines of North America.

NOTE: See offerings in Earth Science in the Department of Plant Science and Technology.

History

2888. The French Revolution and Napoleon. Credit 3(3-0)
(Formerly History 602)

A study of the causes, course and major consequences of the revolutionary movement; also the program and role of Napoleon.

2889. Recent United States Diplomatic History. Credit 3(3-0)
(Formerly History 605)

A survey of recent diplomatic history of the United States to the present time, with special reference to the development of basic as well as contemporary policies.

2890. Social and Political History of England from 1714 to 1832. (Formerly History 606) Credit 3(3-0)

Particular attention is given to political, social, cultural, and diplomatic aspects of England during the Eighteenth Century.

2891. History of Nineteenth Century Europe. Credit 3(3-0)
(Formerly History 505)

This course treats the history of Europe between the Congress of Vienna and the outbreak of World War I. Special attention is given to the growth of ideologies such as nationalism, liberalism, and socialism. Due attention is also paid to economic growth, scientific progress, colonial expansion, and international conflict.

2892. The Soviet Union Since 1917. Credit 3(3-0)
(Formerly History 610)

A theoretical discussion of the ideological background of the Soviet Union with emphasis on the doctrines of Marx, Engels and Lenin. This is followed by events leading up to the revolution of 1917 and the establishment of Communist autocracy, the New Economic policy, the First Five Year Plan, Stalin's doctrine, and Soviet Communism since the death of Stalin.

2893. Contemporary History of the United States. Credit 3(3-0)
(Formerly History 612)

An intensive study and analysis of important problems in American History since 1928. Emphasis will be placed on methods of historical research and writings.

2894. Independent Study in History. (Formerly History 613) Credit 3(3-0)

2895. Europe Since 1914. (Formerly History 506) Credit 3(3-0)

An account of Europe's history in the twentieth century. Special consideration is given to attempts at reconstruction, 1919 to 1939, the conflict of ideologies, World War II, and the issues and crisis between East and West.

2896. Constitutional Development Since 1865 Credit 3(3-0)

Historical study of the development of the Constitution since 1865. Treatment will be given to important Constitutional decisions, major documents, major Supreme Court decisions, and public policy. Assignments in paper-back books will be frequent.

Political Science

2898. Government Finance. (Formerly Pol. Sc. 603) Credit 3(3-0)

A study at the graduate level of Government finances. It will (a) cover the pattern and methods of taxation from a direct poll tax to a withholding system, (b) cover the use of revenues from "Funding the debt" to foreign aid. A parallel study of local and state financial systems will be made. The political implications of government finances will be considered. The course will also consider a newer concept of government finances, "Taxes as an investment." Intensive readings and reports required.

2899. Comparative Government. (Formerly Pol. Sc. 508) Credit 3(3-0)

Comparative analysis underlying the American system of government and selected foreign governments. Administration, organization and processes in these systems of government will also be considered.

2980. Research and Current Problems. Credit 3(3-0) (Formerly Pol. Sc. 506)

Considered are: Fundamental concepts of Scientific Method of research; Effective research procedures; techniques and sources used in research and government; investigation of some current and recurrent problems inherent in Federalism and "States Rights"; individualism and collective action, free enterprise and governmental regulations.

Sociology

2984. Theories of Human Development and Interaction. Credit 3(3-0) (Formerly Sociology 600)

This course is open to graduate students who are majoring in sociology with a view to earning a graduate degree in sociology. Enrollment by permission.

2985. Race and Ethnic Relation. (Formerly Sociology 607) Credit 3(3-0)

A study of race relations in America with specific emphasis upon the Negro in American society; a comparative analysis of human relations in America with those in selected countries.

2986. Socialization and Culture. (Formerly Sociology 501) Credit 3(3-0)

A comparison of ethnographic and other research materials in the fields of psychology, sociology and anthropology on child rearing, personality development, and the learning of social roles. Examination of hypotheses relating early experiences to cultural behavior. Structure and ideological determinants of childhood experiences. Open to seniors by permission.

2987. Advanced Readings in American Sociology. Credit 3(3-0) (Formerly Sociology 505)

This course is designed to give special attention to American scholars in the area of sociology. Open to seniors by permission.

